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EXAMINER

MORAN, MARJORIE A

ART UNIT	PAPER NUMBER
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1631

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DATE MAILED: 10/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/880,467

Applicant(s)

BATZOGLOU ET AL.

Examiner

Marjorie A. Moran

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-- The MAILING DATE of this communication appears n the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 31 May 2002 is: a) ☐ approved b) ☒ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6. 6) ☐ Other: _____

Information Disclosure Statement

The IDS filed 11/9/01 has been considered in full.

Drawings

Proposed drawing corrections were received on 5/31/02. The drawing corrections are NOT approved by the examiner for the following reasons:

Page 5/9 of the proposed corrected drawings contains a "Table of Read Pairs with Common Subsequences" labeled "FIG. 3B". The table itself was previously shown as part of Fig. 3 and is not new matter. However, if the drawing correction were to be entered, there would be two tables with the same information, one labeled Fig.3 and one labeled FIG. 3B. In addition, there is no figure or drawing labeled Fig. 3A. The specification does not provide a description anywhere of a Fig. 3B. As approval of the drawing correction would result in an objection to the specification and figures, the proposed correction is NOT approved by the examiner.

Applicant is advised that the corrections to Figures 4, 7, and 8 are acceptable and would be entered if filed separately from the proposed correction to Fig. 3. Until such time as drawings reciting appropriate SEQ ID No's are filed and approved, the drawings are objected as not being in sequence compliance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites a step of "indexing" a plurality of read subsequences. Claim 20 recites a program means for "indexing" a plurality of read subsequences. No criteria for indexing is recited in either claim. According to the Concise Oxford Dictionary 10th Edition online, originally published in 1999 as a book by Oxford University Press, the term "index" is defined as:

- n. (pl. indexes or especially in technical use indices)

1

- an alphabetical list of names, subjects, etc., with references to the places in a book where they occur.
- an alphabetical list or catalogue of books or documents.

2

- an indicator, sign, or measure of something.
- »exam results may serve as an index of the teacher's effectiveness.«
- a number representing the relative value or magnitude of something in terms of a standard:
- »a price index.«
- »the hundred-shares index closed down 9.3.«

»the oral hygiene index.«

• v.

with obj.

1

- record in or provide with an index.

»the list indexes theses under regional headings.«

2

- link the value of (prices, wages, etc.) automatically to the value
of a price index.

3

no obj. [often as noun indexing]

- (of a machine or part) move from one predetermined position to
another to carry out a sequence of operations.

It therefore appears that an “index” is a listing of items wherein the items are arranged according to a specified order (e.g. alphabetical, regions) or are specifically linked to numerical data (e.g. price). As set forth above, the claims do not recite any

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order or linking limitations with regard to the subsequences, therefore one skilled in the art would not know the metes and bounds intended by applicant for his invention.

The instant specification exemplifies, and describes in the Figures, methods of assembling sequences by indexing subsequences according to "read numbers" and "read direction" (see Figure 2), therefore a method comprising "indexing" subsequences is enabled. However, it is not clear that a listing of subsequences according to read number and read direction, as set forth in Figure 2, is what applicant intends to be the "indexing" of the claims. Applicant is reminded that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As one skilled in the art would not know what criteria to use for "indexing" subsequences, the claims are indefinite.

Claim 6 also recites a step of "indexing" a plurality of read subsequences "of a predetermined length". It is unclear whether applicant intends to further index a subset of subsequences of a particular length, or intends to index the subsequences BY length, therefore the claim is indefinite. If the former, then applicant is directed to the rejection above regarding the indefiniteness of "indexing" in the absence of any criteria. If the latter, then applicant is advised that such a limitation does not appear to be supported by the instant specification, and is asked to point to particular support, by page and line number, for such a limitation.

Claim 8 recites a step of "indexing" a plurality of read subsequences wherein "the index" comprises an associated read and position on the read for each subsequence. It

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is unclear whether applicant intends to index the subsequences according to read and position on the read, or intends to index the subsequences according to some other criteria, wherein the index into which the subsequences are incorporated already comprises information regarding read and read positions for a variety of subsequences (including those not necessarily being "indexed"), therefore the claim is indefinite. It is noted that the specification discloses in paragraph 41 that the "table of Subsequences" exemplified in Figure 2 "can include information about the position of a subsequence along a read", but does not disclose that the position be used to index subsequences.

Claim 4 recites "sorting" of indexed read subsequences, but does not recite any criteria for sorting (e.g. by size, length, number of residues in common, etc.). As one skilled in the art would not know the metes and bounds intended by applicant for "sorting", the claim is indefinite.

Claims 1 and 20 recite a "predetermined" number of common subsequences, each in line 7. There is no step or means of "determining" a number of common subsequences recited in the claims, and the specification does not specifically identify a "predetermined" number for common subsequences. As one skilled in the art would not know what "predetermined" number is intended by applicant for his common subsequences, the claims are indefinite. If applicant intends a --selected-- number, then this rejection may be overcome by replacing the term "predetermined" with --selected--, or a similar term consistent with applicant's intended meaning, in each claim.

Claim 6 recites indexing subsequences of a "predetermined" length. There is no step of "determining" a length of subsequences for indexing, and the specification does

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not specifically identify a "predetermined" length for subsequences to be indexed. As one skilled in the art would not know what "predetermined" length is intended by applicant for subsequences to be indexed in his method, the claim is indefinite.

Claims 2-16 and 18-19 depend from method claims reciting a series of steps, and recite that the parent method "comprises" a recited step. It is unclear if the steps of the dependent claims are intended to replace the previously recited steps, as is indicated by the current claim construction, or are intended to be in addition to the previously recited steps, as would be indicated by the term --further comprises--. In at least some of the dependent claims, it is also unclear whether the recited limitation is intended to further limit a method step already recited, or is intended to recite a new, additional step. If the dependent claims are intended to recite additional method steps, then it is further unclear WHEN in the parent method each step is intended to occur. For example, claim 6 depends from claim 1 and "comprises" a step of "indexing a plurality of read subsequences" of a particular length. However, parent claim 1 also recites a step of indexing a plurality of read subsequences. It is unclear if the indexing step of claim 6 is intended to further limit the indexing step of claim 1 or to replace the indexing step of claim 1, or is intended to be a separate indexing step altogether. If a separate indexing step, then is it intended to precede or follow the first indexing step, or to follow the extraction step? To assist applicant some examples of definite claim limitations follow. Applicant is advised that these are NOT recommendations for specific claim limitations, but merely examples of definite claim construction. Applicant is reminded that any claim amendment must be fully supported and enabled by the

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originally filed disclosure.

The method of claim 1, wherein the indexing step comprises indexing subsequences of a selected length.

The method of claim 1, wherein the indexed sequences are further indexed according to length before the extracting step.

The method of claim 1, further comprising, after the extracting step, a step of indexing the extracted subsequences according to length.

Claim 6 is used above as an example. Applicant is advised that all of claims 2-16 and 17-18 are indefinite for similar reasons, and is advised to thoroughly review the claims for proper, and definite dependent claim limitations.

Claim 2 recites reads "having" associated linking information and an associated distance. Claims 17 and 21 recite reads "having" associated linking information. Linking terms not defined by applicant are normally interpreted to be open claim language, equivalent to --comprising--. Claims 2 and 17 are therefore interpreted to be limiting reads to --comprise-- associated linking information and associated distances. As "reads" appear to be sequences, it is unclear if applicant actually intends the claimed "reads to BE associated with linking and distance information, or intends that "reads" comprise sequence information and linking and distance information associated with the sequence information. As it is unclear what limitation of a read is intended by applicant, the claims are indefinite.

Claim 8 recites the phrase "with which it corresponds" in line 3. It is unclear what is intended to correspond with what, therefore the phrase renders the claim indefinite.

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Claim 9 recites a step of "performing alignments" on a plurality of read pairs, but does not recite what is to be aligned; e.g. only the common subsequences, only one member of each read pair, both members of the read pair, etc. Nor does claim 9 recite any criteria for alignment; e.g. by sequence similarity, by length, by alphabetical order (all sequences starting with an "A" first, "C" next....), etc. As one skilled in the art would not know the metes and bounds intended by applicant for "performing alignments", the claim is indefinite.

Claims 10-12, 14, and 16-17 recite steps of "using" positional or linking information. Claim 21 recites a means for "using" linking information. As it is unclear what positive, active method or program step is intended by the term "using", the claims are indefinite.

Claim 12 recites the phrase "using associated linking information to an ambiguity". This is not grammatically correct and is nonsensical. It appears that a term was omitted, perhaps by typographical error. As the limitation intended by applicant is unclear due to the apparent omission, the claim is indefinite.

Conclusion

No claims are allowed.

The prior art made of record and not relied upon which is considered pertinent to applicant's disclosure is ANSON et al. (Proc. 3rd Int'l Conf. Computational Mol. Biol. (4/1999), pages 1-9).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marjorie A. Moran whose telephone number is (703) 305-2363. The examiner can normally be reached on Monday to Friday, 7:30 am to 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (703) 308-4028. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3524.

MARJORIE MORAN
PATENT EXAMINER

Marjorie A. Moran

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